

[001] MULTISTEP AUTOMATIC TRANSMISSION WITH
THREE PLANETARY GEAR TRAINS

[002] This application is a national stage completion of PCT/EP2004/011031 filed October 2, 2004 which claims priority from German Application Serial No. 103 50 761.2 filed October 30, 2003.

[003] FIELD OF THE INVENTION

[004] The present invention concerns a multistep automatic transmission with at least three individual planetary gearsets and at least five shifting elements.

[005] BACKGROUND OF THE INVENTION

[006] Automatic transmissions operating with several shiftable gear stages, and without a group-shifting procedure, are well known. DE 199 12 480 A1, for example, discloses an automatic transmission of this class having three individual planetary gearsets as well as three brake devices and two clutches for the shifting of six forward gears and one reverse direction gear. This disclosure provides a very satisfactory transmission ratio motor vehicles with a high overall spread of gear ratios and favorable gear stage accessibility to which can be added a high starting ratio in the forward direction. The individual gear stages are achieved by selective closing of respectively two of the six shifting elements so that for the switching from one gear position to the next successive higher or lower stage relative to the current activated shifting elements, respectively only one shifting element is opened and another shifting element is closed.

[007] During this procedure, an input drive shaft of the automatic transmission is continually connected with a sun gear of the second planetary gearset. Further, the input drive shaft, by way of the first clutch, can be connected by a link to the first planetary gearset, and/or alternately, this connection can be made by the second clutch with a link of the first planetary gearset. Additionally, or as an alternate, the sun gear of the first planetary gearset can be made affixed to the housing of the automatic transmission by the first brake. This is also possible using the link of the first planetary gearset with the second brake. Yet a third